Weather, D-12

**SPORTS AMERICANS ADVANCE** Top U.S. players win Wimbledon matches



## ARTIST'S MURDER LEAVES COLLECTION,

#### **MONEY START MAILING** You'll need new stamps Sunday



# The Times-Flicanme

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TUESDAY, JUNE 25, 2002

**NEW ORLEANS EDITION** 

Washing away

How south Louisiana is growing more vulnerable to a catastrophic hurricane

## PART THREE OF A FIVE-PART SERIES Exposure's cost



After Hurricane Andrew, insurers sharply raised rates, and many pulled out of coastal areas. Particularly hard hit was Florida, leaving rubble where many homes stood.

Insurance companies are pulling out. Oil and gas infrastructure is threatened. Flood-prone homes may be abandoned.

#### Louisiana's economy is feeling the pinch from the risk of hurricane damage.



As more people build in flood-prone areas, the threat of widespread damage from a major storm grows. And as the threat increases, so does the cost of protection. Here, developers in St. Charles Parish have built levees around the Willowdale subdivision. The levees offer some protection but may be offset by the erosion and loss of wetlands created by development.

#### - INSIDE -

 $\textbf{BUILDING BETTER} \bullet \text{ Tougher building codes}$ would ensure that more structures in New Orleans can survive a catastrophic storm. **SEE A-8** 

**SEEKING SHELTER** • Three years after Hurricane Floyd, some North Carolinians are still living in temporary housing. SEE A-9

**KEEPING YOUR ROOF ON •** Installing metal roof clips and storm shutters would help more homes survive the high winds and flying debris. SEE A-10

#### WEDNESDAY

**TEMPTING FATE** • As coasts and other vulnerable areas across the country grow more populated, natural disasters are getting more expensive.

Stories by John McQuaid and Mark Schleifstein Staff writers Photos by Ellis Lucia Staff photographer • Graphics by Daniel Swenson Staff artist

insurance started coming due this spring, officials in local governments and school districts were stunned. In St. Charles Parish, premiums to insure the school district's properties more than tripled, forcing officials to devise a complex scheme to buy insurance from five different companies to keep costs down.

In Jefferson Parish, most of the buildings and other property owned by the government are not currently insured at all. The

parish could not find an insurance company to cover more than a third of the value of the \$300 million worth of property, and the cost of doing that was a budgetbusting \$6 million in a total budget of \$318.5 million. Officials are trying to find a cheaper alternative. But if a hurricane strikes first, taxpayers could have to foot the bill.

After the Sept. 11 terrorist attacks, insurance companies took a second look at the risks they were willing to shoulder and how much

See ECONOMY, A-6

### School Board agrees to buy out Davis contract

By Brian Thevenot

The Orleans Parish School Board took action on three major issues Monday: buying out the contract of departing schools chief Al Davis for \$105,000, closing the controversial New Directions Alternative

School, and creating a committee to study concerns about the proposed New Millennium Schools project.

The \$105,000 proposal was submitted by Davis and accepted unanimously by the board, which got off much

See BOARD, A-3



## **FATAL**

Five people were killed and at least 36 were injured Monday when a bus taking a group to a church camp in Ruston slammed into a concrete pillar in Texas. See story, A-2

MIDEAST IN CRISIS

## **Bush calls** for removal of Arafat

Ouster tied to support of Palestinian state

> By Elisabeth Bumiller and David E. Sanger © 2002, The New York Times

WASHINGTON — President Bush told the Palestinian people Monday that they must replace Yasser Arafat as their leader before the United States will support an independent Palestinian

Removal of Arafat was only one of several major changes that Bush demanded of the Palestinians in a blunt speech delivered Monday afternoon in the Rose Garden. He also called for an end to Palestinian terrorism, and for free elections and economic reforms to end corrup-

His speech was tougher on the Palestinians than any of his previous statements and was intended to bring an end to almost

19 months of bloody attacks against Israel and harsh military counterattacks in the West Bank and Gaza Strip. The United States had never before made the creation of a Palestinian state conditional on the removal of Arafat.

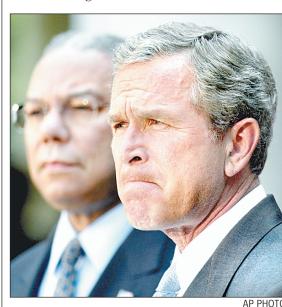
Though he never mentioned Arafat by name, Bush made the price of Palestinian statehood clear: "Peace requires a new and different Palestinian leadership so that a Palestinian state can be born."

Bush effectively endorsed the position of Israeli Prime Minister Ariel Sharon, which he had until now resisted: that no negotiations can take place until Arafat is replaced.

"I thought all the way through the speech, this is the carrot, now comes the stick," a senior Israeli official said. "There was no stick — because we don't deserve the stick."

Louisiana Sens. John Breaux and Mary Landrieu, both Dem-

See BUSH, A-4



'Peace requires a new and different Palestinian leadership so that a Palestinian state can be born, President Bush said Monday. Bush would not say whether he will cease all contact with Yasser Arafat.

### Cash woes threaten flood-control work

One firm tells corps it may stop this week

By Bruce Eggler

The contractor thought most likely to stop working when money for federal flood-control projects in Orleans and Jefferson parishes dries up Wednesday is looking for ways to avoid shutting down its projects in Uptown New Orleans, a company official said late Monday.

Joel Morrow, local manager for Angelo Iafrate Construction LLC, said he was trying to find a way to keep his crews on the job, even though the company earlier told the Army Corps of Engineers that it would stop work after today. But he said he didn't know what would occur.

"We're hopeful we'll be able

to continue," Morrow said. "We will work for as long as we can. We want to finish the projects and clean up the area. That's

the best scenario for everyone." Iafrate is building a \$19.4 million underground canal along Napoleon Avenue, which is due for completion in January, and a \$13.9 million underground canal along Eagle Street in Hollygrove, due for completion in Au-

Iafrate is the only contractor that notified the corps it intended to halt work when money for the Southeast Louisiana Flood Control Program, known as SELA, runs out after

Contractors on 16 other projects did not contact the corps, said Beth Cottone, chief project manager for the corps' local office, and those companies presumably intend to continue working in the expectation they

See PROJECTS, A-4

## Insurance costs explode in risk-prone areas

**ECONOMY,** from A-1

they charged for taking them on. Because of the annual hurricane threat — and the possibility of a storm that tops levees and inundates New Orleans and surrounding suburbs south Louisiana is one of the riskiest places in the United States.

"A lot of it has to do with insurance companies realizing the potential liability that they have, that one incident could wipe out a company's reserves," said St. Charles school district Comptroller Jim Malone. "If they insure in St. Charles, Jefferson and Orleans, then one hurricane large enough to have a significant amount of destruction could devastate their company.

The Sept. 11 effect accentuated a trend already under way among insurance companies: to make people, businesses and governments shoulder a bigger burden in risky areas, especially coastal zones prone to hurricanes.

"If folks choose to live along the coast, there is a need to have them bear some of the responsibility and risk of living in an area that is vulnerable to such an obvious peril," said Gary Stephenson, a spokesman for State Farm Insurance Co., which writes close to a third of Louisiana private property insurance business, and which for a time stopped writing policies in the hurricane-prone area south of Interstate 10.

#### Stakes rise with the seas

Louisiana's insurance difficulties are part of a larger problem shadowing the south Louisiana economy: There is more to lose and there are more ways to lose it than ever before.

More people, buildings, industrial sites and infrastructure sit in potential paths of destruction, and those paths are widening thanks to sinking

"We are continuing to lose land, and each acre, each square mile lost increases the risk of significant damage during a storm," said engineer Peter Smith of the firm Waldemar S. Nelson, who is directing a study on the economic impact of erosion and storm hazards for the Army Corps of Engineers that will be completed next year.

In the New Orleans area, meanwhile, levees protect against smaller storms but can trap the floodwaters from large storms and create almost unimaginable — and unimaginably expensive — damage.

Louisiana hasn't seen a storm with damage in the billions of dollars since Hurricane Betsy in 1965. But the companies operating in the state face a sometimes perverse logic: If the odds favor something bad occurring in the future, it costs money in the present.

As waters have advanced, south Louisiana has begun to feel a growing economic pinch from higher insurance premiums, home-building costs and public and private outlays to try to hurricane-proof everything from roads to oil and gas facilities.

The economic dynamic is complex. In the short run, some spending may stimulate the local economy. But the geological forces eroding the Mississippi River delta cannot be stopped. As costs rise, governments, businesses and individuals may ultimately have to weigh whether to keep spending or to give up.

Risk in south Louisiana varies depending on location. Towns in the marshes such as Cocodrie often flood but are small and don't rack up large-scale damage. However, a storm that floods the east bank of Orleans and Jefferson parishes, trapping water inside the levees, would cause damage on a scale unseen in the United States. Other places, such as St. Bernard or St. Charles parishes, fall somewhere be-

tween those extremes. A 1998 report on Louisiana's insurance risks estimated the potential insured damage from a catastrophic storm at \$27 billion for just homeowner's and auto insurance, excluding flood damage and industrial and infrastructure losses sure to make up a because there has been a huge proliflarge part of the cost. New Orleans insurance executive Woody Crews says a catastrophic flood in New Orleans and Jefferson Parish would result in \$100 billion to \$150 billion in damage, seven times the amount spent so far on the war in Afghanistan.

A generation ago or longer, those numbers would have been substantially lower. But today cities and

As the coast erodes and land sinks, people as well as industries are becoming ever more exposed to the high winds, storm surges and inland flooding that accompany hurricanes. The cost of protecting us and keeping the land habitable is increasingly taxing the Louisiana economy.

WASHING AWAY



Critics of coastal development fear that the next big storm will be followed by a massive insurance payout. The consequences may include a pullout by more insurance companies and a spike in rates, particularly as development of second homes and fishing camps continues in vulnerable coastal areas. Jay Culotta of Denham Springs installs gutters and decking for a contractor in the Southern Comfort subdivision on the Houma Navigational



STAFF FILE PHOTO BY RIC FRANCIS

businesses and more infrastructure are in place. East Jefferson, a semirural area when a hurricane flooded it in September 1947, is now a

densely populated suburb. "In 1965, Betsy cost \$5 million to State Farm," Stephenson said. "Projections looking at the same storm say it would cost us \$1 billion today eration of building on the same land, and the value of the land and what's on it has increased dramatically."

Rising insurance costs are the most obvious result of these trends. Two main sources of insurance are available: The federal government offers flood insurance through private companies, which themselves cover wind and other storm-related damtowns sprawl over wider areas. More

#### **Breaks for the coast cut**

Louisiana tops the

number of repeat

claims for flooding,

one of the reasons

cited for the ever-

insurance. In areas

flood, such as Irish

New Orleans, seen

here after Tropical

Storm Frances in

developed a post-

flooding cleanup

routine: Clean out

muck and debris,

shoo out vermin,

scoop up snakes

possessions that

have been stacked

up, elevated away

from floodwaters.

and take down

furniture and

residents have

1998, some

Bayou in eastern

nation in the

rising cost of

that regularly

After Hurricane Andrew in 1992 stunned the insurance industry with unexpected 11-figure losses, insurance companies gradually restructured the way they cover coastal areas. Part of the effort is making sure they have sufficient resources to cover a catastrophe. They now use a combination of more readily available, but sometimes expensive, reinsurance coverage, risk-based securities and other ways of spreading the

costs of the added risk. A key element of the changes was to stop giving a break to coastal areas, which had for years enjoyed rates subsidized by less-disasterprone customers elsewhere in the country. Until Andrew, companies

used crude estimates of potential storm damage based on their payouts from previous years. "Using historical data does not

give a good estimate of what our exosure is," said Jeff McCarty, a State Farm actuary. "At most we have 20 years of data, and during that period there has been a lot of exposure increase. It has also been something of a lull period for storms."

So companies contracted with computer modelers to develop sophisticated programs to map risk in coastal areas. One program, called EQECAT, uses 120 years of storm data to estimate the risk of hurricane-force winds hitting a given area. premiums in the nation. It then calculates the potential damage to insured properties, along with income from premiums and the costs have outpaced the rest of the state

of reinsurance, to get an estimate of annual claims for insurance companies in the long run. The numbers run significantly

higher than they did using older methods, insurers say, and have led to higher rates and deductibles, and sometimes have prompted companies to pull out of affected areas.

In Louisiana, private insurance coverage is retreating as waters rise. Sixteen companies now offer coverage south of I-10, compared with 60 before Andrew, according to acting state Insurance Commissioner Robert Wooley. Louisiana's costs put it near the top in terms of insurance

Rising insurance costs for homeowners in Louisiana's coastal areas LOSING GROUND



The oil and gas industry's nerve center near the open Gulf in Port Fourchon will be particularly at risk when a major storm hits. The region has become increasingly exposed to the threat of flooding, storm surges and wind damage because of coastal erosion. Not only could a storm surge cause significant damage, but the port facilities are linked to the mainland by a two-lane road that likely will be washed out in a big storm.



Keeping roads passable and homes dry is a constant battle for state, local and federal officials. Here, St. Charles Parish officials and the National Guard hastily constructed a 2-foot levee to keep floodwaters from Tropical Storm Frances away from homes on Up the Bayou Road in Des Allemands in September 1998. The allure of

waterfront property is strong for some. But the attraction to Gulf, canal, lake and river vistas carries a price tag. Braces like the ones used on this trailer just south of the Golden Meadow community on ouisiana 1 can help keep homes and fishing camps tethered during

high winds.

by 20 percent to 30 percent over the single-family home, depending on cause of rising costs and companies Flood Insurance Program, which past decade, state Department of Insurance actuary Richard Piazza said. The biggest single change is in the deductible. Formerly a fixed amount, deductibles are now typically 2 peraccording to the Insurance Informacent to 5 percent of the value of the tion Institute. home, though that can be avoided if a

does that a hurricane spins off.

While some of the region's large industrial plants, such as the

face a danger from storm-surge flooding, chemical plants and

other industry located farther inland on high ground face a dif-

ferent threat. In the next big storm, experts say, many plants

may see unexpected damage from the high winds and torna-

Union Carbide plant near Taft on the Bonnet Carre Spillway,

customer pays higher premiums. In Rapides Parish in central Louisiana, State Farm's insurance companies there are willing to offer premium on a \$100,000 home with a \$500 deductible would be about \$880 depending on individual circumstances, Stephenson said. But in Jefferson Parish south of the Intracoastal Waterway, the cost is almost double: \$1,633 annually. Even in pro-

tected suburban areas, it's \$1,046.

Federal flood insurance can add

The situation has put the state in a the higher rates go and the fewer pecially below I-10," Wooley said. keep rates lower.

STAFF FILE PHOTO BY ELLIS LUCIA

plans for homeowners — intended as of homeowners scrambling to find a last resort for those unable to get new coverage. coverage elsewhere — have ballooned from 0.4 percent of the market pre-Andrew to approximately 6

whether it is in a flood hazard zone, pulling out. Officials are looking at putting total bills well over \$2,000 an- raising rates to get that percentage nually. The U.S. average for home-down again and now spend much of owner's insurance is currently \$533, their time trying to persuade more companies to write policies in coastal areas. Wooley said.

"In Louisiana we're starting to vicious cycle: The more risk there is, run into an availability problem, es-

In the past month, for example, coverage. The fewer companies there one of a half-dozen Lloyd's of London are, the less competition there is to syndicates offering insurance in the state pulled out of the homeowner's The state's own public insurance market in the area, leaving hundreds

#### Oil infrastructure exposed

People get flood insurance through another \$375 to \$1,500 for a \$100,000 percent this year, Piazza said, be-the federal government's National

makes people in high-risk areas pay more, especially coastal areas prone to storm surges, which get a special designation in the program. But as private insurance companies once did, the national program still partly subsidizes flood-prone areas, which means that it redistributes the premiums from people in low-risk areas.

Louisiana ranks first in the country in the number of repeat flood claims and is a constant drain on the program. Bush administration officials and some members of Congress are pushing for changes that will force some properties with repeat claims out of the program and raise rates for the rest in floodprone areas. In New Orleans, the city's Office of Emergency Pre-

paredness has offered a half-dozen such properties along Napoleon Avenue the opportunity to raise their homes at cut rates, thanks to a federal program that will underwrite 25 percent of the cost.

Industrial insurance has risen in tandem with private homeowner's insurance, adding a drag on the state's industries and governments. Recent coverage problems for school districts and parish governments may ease somewhat if no major catastrophes occur in the near future. But the long-term trend is toward higher rates and spottier

coverage. One reason for rising jitters is that erosion is encroaching on structures that were once well inland. This is a growing problem for oil and gas facilities built in the marshes that are now exposed to elements they were never designed to withstand.

"Pipelines running through marshes are under additional wave stress and becoming more and more exposed. So is infrastructure in the bays," said Greg Stone, a geologist with Louisiana State University's Coastal Studies Institute who is working on a computer modeling study of the problem for the state Department of Natural Resources. "If it needs to stay, it needs to be retrofitted; otherwise it may not survive. If a worst-case scenario (storm) came through, believe me, the existing infrastructure is not set up to withstand it."

Much of Louisiana's original oil and gas infrastructure was built in marshes, where the initial petroleum strikes were made. Even as most drilling moved offshore, a large network of pipelines, wellheads, relay

stations and other facilities remained. The landscape has changed around them, leaving aging facilities in open water, vulnerable to everyday wave action and the prospects of more frequent flooding and more punishing storm surges. Structures above the waterline may be in the path of debris loosed in a storm: mud, tree trunks, cars, tanks, even

"If (a storm surge) is big enough, it will get up above the existing floor of platforms where the equipment is. So your equipment is more vulnerable," said Al Thomas, the president of PetroQuest Energy, a Lafayette oil and gas exploration company. "Today you'd design totally differently than you would 10 or 15 years ago, when you had a barrier island to take

#### the brunt of a storm.' 'A false sense of security'

The problem also shows up below the waterline. Most pipelines were originally buried more than 3 feet down. But many marshes are now open water. Waves and currents scour the bottom and expose pipelines, especially during storms. from pipeline damage because of snagged anchors and other hazards of ship traffic, and the possibility of

debris striking pipelines in a storm. The area's oil and gas distribution and service sites have the same problem on a much larger scale. They house strategically important concentrations of equipment that could be damaged in a storm and cause a temporary disruption in the flow of energy. And if they took major damage in a storm, Smith said, their owners might conclude they are better off moving to another staging area,

such as Texas. Port Fourchon, the large oil and gas service center perched near the open Gulf a few miles west of Grand Isle, is crucial to many of the central Gulf's offshore facilities. A major storm surge could cause big damage. Worse, the port is linked to the mainland by Louisiana 1, a two-lane road likely to

be washed out in a major storm. As roads sink, the state and local governments must repeatedly spend

just to keep them open. Most of the region's chemical plants and other large industrial facilities are built on high ground and are relatively safe from flooding. But they feel the effects of erosion in the form of higher hurricane winds, which sustain speed farther inland than they used to. In the next big storm, plants may see unexpected problems from wind damage, a study by LSU Hurricane Center director

Mark Levitan shows. Most industrial sites are designed to withstand the winds of a Category 3 storm, which run from 111 to 130 mph. The study found that different construction firms had different interpretations of building standards for hurricane-force winds, and that there probably are wide variations in the strength of structures. Because it has been decades since winds that high hit the area, the study concluded, "the experience of relatively minor damage to plants during Category 1 storms in this period has perhaps lulled many into a false sense of

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## Building better

Requiring that new structures be designed to survive Category 3 and stronger hurricane winds would save lives as well as buildings,

and in the long run would save homeowners money.

#### By Mark Schleifstein

JEFFERSON Parish officials found a disturbing flaw last year in their plans to open "refuges of last resort" for people stranded in a major hurricane: Only a few interior areas in a handful of public buildings could be trusted to withstand the 155- to 200-mph winds of a Category 5 storm.

"We were not really surprised," said Louisiana State University Hurricane Center director Marc Levitan, who oversaw an engineering assessment of the parish buildings. "Even in Florida, with their much more strict building codes, they've had serious problems with a deficit in safe shelter space."

New Orleans authorities decided to abandon similar refuge plans after concluding that up to 90 percent of the buildings in the city are vulnerable to damage from the most powerful hurricanes. Jefferson Parish is moving forward cautiously, knowing space will be limited for those left behind.

Emergency officials in both parishes say they are hoping to persuade people to evacuate rather than end up huddled in buildings that might dissolve or explode in the teeth of nature's most powerful

"We just don't have the structures in the metro area that are constructed to take that kind of wind," Jefferson Parish Office of Emergency Preparedness director Walter Maestri said. "Our building codes have not required us to build buildings capable of withstanding 170- to 200-mph winds, and engineers are now saying there may be

first screw-type pumping station on

still in use.

Broad Street. The original pumps are

even higher winds. Here the standard is 100 mph. And of course a lot of our buildings, except for the newer buildings Poydras Street (in New Orleans), were built prior to any code being in place at

that must change: As Florida upgraded its building code and strengthened enforcement after Hurricane Andrew in 1992 and California has long required buildings designed to survive major earthquakes, south Louisiana needs to make changes to protect property and provide basic shelter for those caught in

the path of a killer

But experts say

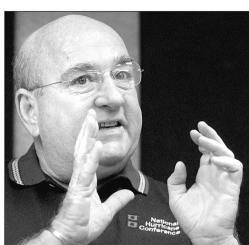
"We at least ought to be looking at hardening (making buildings more resistant to high winds) as far as public buildings are concerned," said Hucky Purpera, chief of the natural

and technical haz-

fice of Emergency Preparedness. "Every high school that's built could become a shelter, or certainly a refuge of last resort to save

Authorities say protection could

ards division in the Louisiana Of-



"We just don't have the structures in the metro area that are constructed to take that kind of (Category 5) wind. ... Here the standard is 100 mph. And of course a lot of our buildings, except for the newer buildings along Poydras Street (in New Orleans), were built prior to any code being in place at all."

> WALTER MAESTRI, Jefferson Parish Office of Emergency Preparedness director

be greatly improved with some basic changes, including design and construction practices that would add as little as \$2,000 to the cost of

hurricane clips and

Southeast Louisiana Hurriwhich comprises emergency preparedness directors, will recommend that the Legislature consider requiring any new government buildings built south of Interstates 10 and 12 to be constructed

to withstand the

worst of hurricanes. "They should be built to withstand a Category 5 hurricane, not only wind load, but from an elevation standpoint for storm surge," said Gerald Falgoust, director of the St. James Parish Office of Emergency Preparedness and former chairman of the task force committee that is recommending strengthened build-

ing requirement. "There are things that can be done if some engineering takes place prior to a building being built."

The problems with structures considered as last-resort refuges in Jefferson Parish included wide ex-

inexpensive to do wind to "blow up" a building if dethese things, like bris smashed through the windows, walls built without reinforcing bars straps on beams necessary to withstand 150-mph to and rafters to hold 175-mph winds, and roof beams roofs on," Purpera that were too long to guarantee they wouldn't collapse in such Next year the winds, LSU's Levitan said.

In many cases, water damage to roofs and walls also made the buildcane Task Force, ings too vulnerable to the effects of winds, he said.

The state-approved building code used in Jefferson Parish requires buildings to withstand the effects of winds blowing at 100 mph for three minutes. That's the equivalent of a shorter gust of wind blowing at 120 mph. A Category 3 hurricane can be accompanied by sustained winds of 130 mph and much stronger gusts.

Falgoust said the Legislature shouldn't stop with strengthening requirements for public buildings. Building codes in the state should also be strengthened to reduce damage to private homes and businesses from such storms, he said.

Purpera agreed, saying California's building code has been strengthened several times during the past 20 years as officials learned more about how to protect buildings from the effects of earth-

"We're way behind that, as far as preparing for a hurricane in Louisiana," Purpera said. "Architects aren't aware of what it takes to harden homes or buildings to withstand hurricanes in New Orleans, how to create a lot of individual refuges that could save lives."

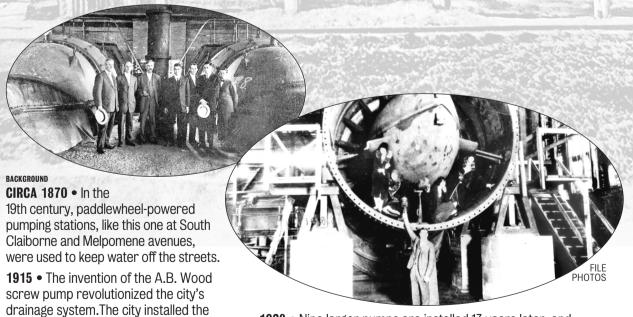
Steven Bassett, a Palm Beach, Fla., mechanical engineer who helped Florida officials in their 10year effort to rewrite the state's

See CODE, A-10



a new home or to retrofitting an existing one. "For wind damage, it's relatively panses of glass that would allow Keeping water out of a city that's mostly below sea level is a

full-time job. During typical rainstorms, giant screw-type pumps can clear streets generally within minutes, although a stronger storm can take longer. But if floodwaters from a hurricane topped a levee, New Orleans' pumping stations could be submerged in a matter of hours. With the pumps out of commission and their power source possibly disabled, it could take months to dry out.



**1928** • Nine larger pumps are installed 13 years later, and a city official commemorates the event with four flappers posing inside the pump near the 14-foot blades.

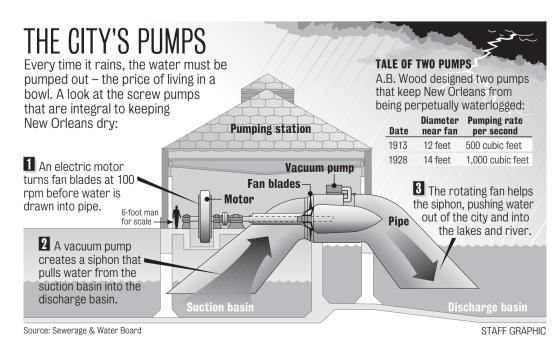


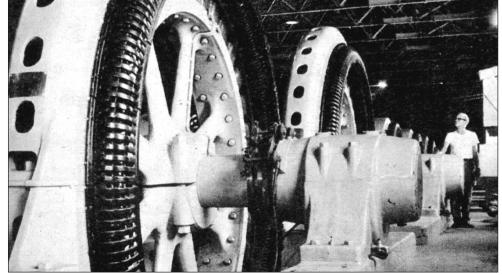
storm, the pumps can remove up to 5½ inches of rain before being overwhelmed. Here, a new pump with 11-foot blades — is installed at Florida Avenue near the Industrial Canal.

**1991** • During

the first five

hours of a





1972 • Giant motors propel the screw-type pumps, such as here in the Metairie Relief Canal pumping station. The motors are powered by the S&WB's own power grid.

WASHING AWAY

After Hurricane Floyd inundated parts of North Carolina in 1999, thousands were left homeless.

Today, nearly three years later, some people are still living in temporary trailers.



the Tar River Floyd. About 10.000 people were left homeless.

# Seeking shelter

By John McQuaid

ROCKY MOUNT, N.C. GRIFFIN Clark's string of bad luck began when Hurricane Floyd flooded her out of her apartment in a small public housing development in Tarboro, N.C. Then an old foot injury acted up and she had to get orthopedic surgery. Unable to work for a time, she lost her job at an auto parts plant. Unable to pay the bills, she filed for bankruptcy. Amid the problems, she was unable to find a new place to live.

So for two years — long after Floyd had become just an unpleasant memory for most people — she stayed in a mobile home provided by the Federal Emergency Management Agency for storm refugees in Rocky Mount, about 20 miles west of Tarboro.

"It's not much, but it's home," she said, sitting on a couch and looking down at the tattered carpeting in the living room one day in November. "It's been rough being so far from my real home, my friends. I've been trying to get out, rent an apartment back in Tarboro. But there's no place to get

Clark finally moved out in March, 30 months after the hurricane struck. With help from a federal relief program, she bought one of the used FEMA mobile homes on a plot in a park once used for storm refugees, now converted to private use, just outside of Tar-

When a disaster wrecks homes, the federal government steps in with temporary housing, considered a last resort for those who cannot find anywhere else to stay. The idea is to provide basic shelter until homes can be repaired or rebuilt. But when the damaged buildings are public housing units and rental apartments occupied by poor people, owners or agencies may be slow to rebuild. They may never come back at all. With nowhere else to go, people with few financial resources can end up in temporary housing for a very long

North Carolina's post-Floyd problems with poverty and temporary housing give a hint of what New Orleans could face on a much larger scale if a catastrophic storm swamps the city. North Carolina's experiences also provide a rough road map of what emergency managers here would have to do to address the needs of newly homeless residents.

Based on the North Carolina example, the state and federal governments would end up running what would be the largest public housing program in the nation's history, allocating money and other resources to maintain large trailer and mobile home parks while waiting for inexpensive, alternative housing to be rebuilt in the city. That might not take place for years, if it occurs at

North Carolina's temporary housing program was supposed to shut down after 18 months. But it was extended twice, and 33 months later it is still operating after a second deadline expired. Officials had whittled the numbers down to 69 families at the start of June, and they are hoping to end the program this summer.

#### Flood leaves 10,000 homeless

North Carolina's 1999 deluge bears a rough resemblance to the "filling the bowl" scenario in New Orleans. The hurricane came on the heels of a tropical storm that



North Carolina officials had expected to shut down their temporary housing program after 18 months, but 33 months later, there are nearly 70 families still living in temporary housing, such as here in Princeville, N.C.

dumped heavy rains and swelled lo- of the floor.' cal waterways. When Floyd strafed North Carolina — the worst hit were declared disaster areas storm surge in coastal areas put

with water," Clark said. "There dreds of thousands of people would were frogs and snakes. I didn't have more than two days worth of clothes when we left. Water was after everyone stranded was rescoming up in the driveway. All we cued and the waters receded, could see was water. It stayed up North Carolina emergency mantwo to three weeks before we could flooded. What water didn't damage, mold got to. Steps collapsed.

The hurricane's widespread flooding initially left more than 10,000 among the East Coast states that people homeless and heavily dam-Jefferson and St. Bernard parishes, 18,000 square miles of land under by contrast, the disaster would be water. Dozens of towns were more confined geographically but tures. More than a 100,000 dwellings In Tarboro, "the roads filled up would be heavily damaged. Huninitially be left homeless.

Days after Hurricane Floyd, agers realized they had no plans get back in there. When we did, the for how to handle the massive and mobile homes. FEMA and state whole apartment complex was needs of the dispossessed. In spite of that handicap, they managed to mobilize fast. They from points across the United Everything was piled in the middle formed an interagency committee States. Officials working on cata-

age the \$1.3 billion in disaster aid that would soon be coming through. They hired Doug Boyd, aged 15,000 homes. If the levees are an ex-Army major, to run the proheavy rains, river flooding and a topped on the east bank of Orleans, gram. Workers fanned out to canvass possible locations to build temporary trailer parks, preferably as cheaply as possible. flooded, some for days, a few for would affect more people and struc- FEMA initially moved in more than 1,800 travel trailers and, more gradually, 475 mobile homes to accommodate the approximately 5,000 people — about 2,000 families — in need.

to handle the response and man-

South Louisiana would require a more massive national mobilization of resources, one that might even stress national inventories of trailers agencies would truck thousands of those housing units into the region

strophic disaster planning are looking at where the units might go and say it might have to be far from New Orleans — rural Mississippi, for example, something that might put commuters in a bind or force some to quit jobs, if their jobs still

#### 'Little towns' spring up

North Carolina officials set up 11 parks for travel trailers and the more permanent mobile homes. Some ended up in remote rural areas, others on unused properties in industrial areas on the edge of small towns — generally, the least desirable spots around. "If you have to live in temporary housing, you can have it at three locations," Boyd said. "First, the best if you are the homeowner, put it on your own property. Second, a commercial site, a trailer park, close to your home. Third, group parks. For renters we had to build group parks."

Setting up and maintaining the parks was a complex job. It involved installing utilities, ensuring police protection and dealing with the needs of individual families.

"You're building little towns," Boyd said. "So you've got sewer, electrical stuff. You have to build the infrastructure before people can move in. We had to put everything in place — had to build mailboxes, hire a transportation company to bring buses to take people to the hospital, grocery stores or other places they need

The parks were crowded and unpleasant places to live, residents say. Some liken them to Third World refugee camps. "It was kind of like living in a neighborhood, but noisy,' said Theresa Richardson, who lived in a park with her family for more than a year. "You were compacted together; everyone could hear your conversations, people walking by at all hours of the night."

For a time police units were assigned to some of the parks around the clock because of rampant crime. "You bring so many people close together, you got problems: domestic disturbances, drugs, prostitution," said Stan Ballantine, who manages the Fountain Industrial Park site.

Stuck with administering these quasi-towns, officials worked to move people out and shut them down. But that work has been slow and arduous because of a lack of affordable housing units for the poor. The sparsely populated rural area never had a lot of rental housing units, and now it has fewer.

"Eight or nine family public housing complexes were destroyed as a result of Hurricane Floyd," said Eric Tolbert, the state director of emergency management. "In some cases the rebuilding process hasn't been started. Of those facilities there is only one that has started leasing, letting residents back in.... The procedure to go through and get approval to rebuild those units took a long time. With private rentals, owners are not, for whatever reason, going to rebuild it or don't want to lease to the tenant again."

New Orleans has 20,000 people living in public housing. In the wake of disaster, it's unclear how, or if, the federal government would move to redevelop the property immediately. Renters would also face an empty market at first, then one that might be rebuilt to suit the needs of those with higher in-

"Anywhere you have a relatively poor population, they are typically renters, so they have little control over whether places are rebuilt, said Betty Morrow, a sociologist

See NORTH CAROLINA, A-10

RED BLUE YELLOW BLACK

WASHING AWAY

### Lives depend on stiffer codes, experts say

A-10 TUESDAY, JUNE 25, 2002 THE TIMES-PICAYUNE

**CODE**, from A-8

building code to address problems revealed by Hurricane Andrew, said strengthening the code will result in significant

"States with substantial coastal regions should consider fects of a strong Category following Florida's lead," Bassett said. "To do so will improve tion is inaccurate. Wind building and housing integrity, save money through reduced storm-related property destruc- rize hurricanes are based tion and better protect the on one-minute averages, health and safety of those not gusts. Gusts can be as states' residents and visitors."

Florida's new code, and an than the maximum suseven stronger code in Miami-Dade County, requires buildings on the beachfront to withstand sustained winds of 150 mph. Wind-speed requirements drop ricane, officials measured for buildings farther inland.

A preliminary study by in New Orleans. The high-Florida building officials of est sustained winds meathree large, expensive new sured in New Orleans homes found that the new state reached 130 mph during a code added 3 percent to 10 per- 1915 hurricane. Those cent to the cost, depending on winds ripped the steeples whether the structures were off a dozen churches and built with masonry or wood, as damaged thousands of well as the types of materials used to protect windows and other wall openings.

Levitan said such increased costs might be offset by lower ings in the French Quarter, insurance and repair costs over the life of the building.

"People think of building codes as a stick, but there's also a carrot coming with manages many of the oldest them," he said. "With a more strict building code, you the 18th century Cabildo and might be able to get insur- the Presbytere, said he is not ance, or pay less for it, or too worried about damage have a smaller deductible if from even the worst hurrithe house is built to a better canes standard. Wind is the biggest single catastrophic loss that the insurance industry has to hurricane," Sefcik said. "After pay off," because flood dam- the (1988) Cabildo fire, we inage is covered by the federal National Flood Insurance the building back the way it

Improvements in building Cabildo and the Presbytere, storm found that much of the

also can reduce the cost of flood insurance, as seen this year when a good code-enforcement record resulted in a 5 percent across-the-board reduction in flood insurance rates for New Orleans homeowners.

New Orleans is moving toward adopting the International Building Code and International Residential Code, which will require new buildings to withstand the effects of a 130mph wind gust blowing for three seconds, a 10-mph improvement over the state's existing code.

Though the code requirements would seem to indicate a building would have to withstand the ef-3 hurricane, that assumpspeeds in the Saffir-Simpson scale used to categomuch as 50 mph stronger tained wind speeds, experts sav.

**During Hurricane Betsy** and an unnamed 1947 hur-125-mph sustained winds other buildings in the city.

New Orleans also has the unique problem of protecting the centuries-old buildwhich are both historic and a major tourist attraction.

Louisiana State Museum director James Sefcik, who buildings in the city, including

"I don't have any doubts our buildings will take any level of structed our architect to put was before. If you look at the

codes and their enforcement those cypress beams are about 14 inches thick, and they are construction and poor code enpegged together, so it's unlikely

anything is going to happen." In advance of Hurricane Georges, he said, his staff boarded up the buildings in eight hours.

"We also can remove from the ground floor of buildings any artifacts that we feel would be at risk from rising waters in a day or day and a half," he said.

However, he is not so sure rectly about other buildings in the Quarter. "I think that if their tered on the Miami-Dade roofs are in bad repair, they're

"People think of building codes as a stick. but there's also a carrot coming with them. With a more strict building code, you might be able to get insurance, or pay less for it, or have a smaller deductible if the house is built to a better standard.

MARC LEVITAN, Louisiana State University Hurricane Center director

probably going to go. I think flying debris is probably going to be a serious problem. Lesser buildings, a lot of them are going to be damaged."

#### 'Roofing was a problem'

Along Biscayne Bay in Miami-Dade County, by contrast, the building code required structures to be built to withstand winds of 150 mph even before Andrew. In interior parts of the state, the standard is 120

Still, thousands of buildings in south Florida were severely damaged or destroyed by Andrew's 135- to 145-mph winds.

Investigations after the

damage was the result of faulty

"Roofing was a problem," said Bill delGrosso, emergency management coordinator for Miami-Dade County. "It had been installed with nail guns, and now we require screws. It's simple survivability things like that that really caused an awful lot of damage during Andrew, simply attaching roofs cor-

But the biggest problem cen-County code's lack of a require-

ment to cover window

openings, Bassett said. Homes with windows that were not protected by shutters or shatter-resistant window glazing were supposed to be designed to withstand the pressure of high winds pouring into the structure. But they weren't, he said. Today all buildings in Miami-Dade County must be built with shutters or windows designed to withstand windblown debris. Coverings made of %-inch plywood also are ac-

Miami-Dade County, using a Federal Emergency Management Agency grant, also is installing shutters on several thousand homes owned by low-income residents, part of the county's strategy to have residents upgrade buildings to the point that they don't have to go to

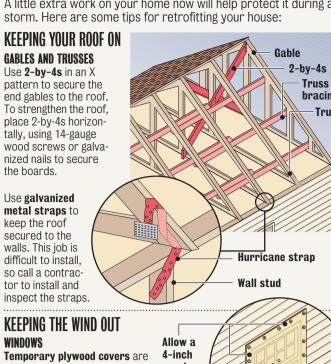
storm shelters. The proposed changes in New Orleans' building code will require windows to be made of impact-resistant glass or to be protected by shutters, or that buildings withstand a 130-mph gust with or without window coverings. But adoption of the new code would not require retrofitting of older buildings. Building code administrator Curtis Mann said state law prohibits the city from applying codes retroactively unless more than 50 percent of the structure is being replaced.

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## PROTECTION FROM THE STORM

A little extra work on your home now will help protect it during a

Tue, Jun 25, 2002 11.04 AM 06.25a1.hurricane



an inexpensive way to protect your windows from wind and debris. 5/8-inch plywood is recommended by the National Association of Home Builders, and <sup>3</sup>/<sub>4</sub>-inch is recommended by insurance experts. The boards can be attached using lag bolts with galvanized anchors.

Drill holes in center of plywood for pressure equalization. Other window covers that can be installed by professionals include: **Workable shutters.** Shutters are attached to the side of the window and must be secured with storm bars before a storm

**Aluminum storm panels.** A permanent track is installed above a window

overlap

on each

or door. The panels slide across the track and are secured with screws Roll-down shutters. Shutters are rolled inside a horizontal casing permanently attached above a window or door. It secures with storm bars and

can be hand-cranked or run by an electric motor.

**KEEPING IT CALM INSIDE** FRENCH DOORS Brace French doors with an interior 2-by-4 attached with lag bolts to the door frame. If the bracing doors have windows. attach plywood shut-

**GARAGE DOORS** To stabilize garage doors, use 2-by-4s. Attach them to the steel bracing on the doors. For center support, predrill holes in the concrete floor to bolt down a wood block. Using wood screws, attach a 2-by-4 to the middle bracing.

2-by-4 horizontal bracing Track Angled 2-by-4 Source: National Association of Home Builders, Federal Emergency Management Agency, staff research

STAFF GRAPHIC

2-by-4



STAFF PHOTO BY ELLIS LUCIA Floodwaters from Hurricane Floyd filled the streets of Belhaven, N.C., in 1999, damaging nearly a third of the town's residences. Belhaven Town Manager Tim Johnson says the town is still recovering.

## Carolina's housing crisis bodes ill for N.O.

**NORTH CAROLINA,** from A-9 with the International Hurrisuburban area of Homestead.

Eventually, about 70 percent of single-family housing in Homestead was rebuilt, but less than half of the multifamily units, according to Mary Comerio, a professor of architecture at the University of California, Berkeley, and author of a book on disaster recovery.

Similar misfortunes befell 1989 Loma Prieta, Calif., earthcane Center at Florida Internaseems like a small number," fects of Hurricane Andrew, income housing. They turned from scratch financially.

which hit south Florida in 1992, some Safeway (grocery store) devastating the working-class they were using as temporary are reluctant to move out. Un- ing with her two children in a most of the dispossessed get shelter into a homeless shelter. There was no alternative housing for those who lost their ever inconvenient it may be to "I just got a job as a cashier at a homes. Private charities have

#### Some reluctant to move

There are no clear rules governing how long people may stay in temporary housing, and North Carolina officials have not tried evicting anyone — yet. low-income residents after the People who remain are urged, but not forced, to move out and 10,000 housing units lost, which complex terrain of public and private aid and loan programs

electricity and say, 'Why should I leave?'

But long-term tenants say exist. Assuming it's salvageable, they have trouble getting a devastated New Orleans will quake. "There were 8,000 to are given help navigating the enough cash together to meet almost certainly receive a masthe requirements of apartment sive influx of federal money that living, including the references can provide some seeds to retional University in Miami and Comerio said. "But they were — not easy for people who have and security deposits that are build, though any effort would co-author of a book on the ef- almost all residential, low- lost their homes and must start often required. "My finances be arduous." have been up and down," said In North Carolina, post- 7889 or john.mcquaid@newhouse.com.

Some remaining residents Rosemary Myrick, who was liv- Floyd programs have helped der the program they pay no mobile home park. They moved their own housing. FEMA and rent, water or sewer bills. How- out to an apartment last month. live in an out-of-the-way trailer tire and auto shop. Now there's also gotten involved. For exampark, the alternatives may be a problem with credit. (I'm) trymore expensive and less coming to get that straightened out. fortable. "I hate to say it, but It's fine living here. It's home some people get complacent," for me — for the moment. I Boyd said. "They're paying only don't take anything for granted since the flood."

Some reasons for optimism

state grants are available to buy ple, after more than a year in temporary housing, Richardson took advantage of a program run by Habitat for Humanity. She and her husband put up a modest down payment and together contributed 500 hours of labor building a house. Last year they moved into a new, three-bedroom home on a residential street.

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